BULLETIN

OF THE INSTITUTE OF METALS

VOLUME 1 DECEMBER 1951 PART 4

INSTITUTE NEWS

The Autumn Meeting in Italy

About 250 members and their ladies (exclusive of those resident in Italy) took part in the recent Autumn Meeting which was held in Italy by invitation of the Associazione Italiana di Metallurgia. After four days in Venice, members proceeded to visit metallurgical works at Bolzano, Milan, Turin, and—from Florence—Fornaci di Barga. The meeting, a detailed programme of which was published on pp. 129–141 of the news section of the August issue of the monthly *Journal*, opened in the Doge's Palace at Venice, the opening ceremony being attended by the Minister of Education, the Mayor of Venice, the British Consul, the Presidents of the Industrial Associations of Marghera and Venice, the President of the Associazione Italiana di Metallurgia, many local notabilities, and over 500 members and ladies of the Associazione and the Institute.

In Venice, the scientific sessions of the Institute and of the Associazione were held, side-by-side, in the Ca' Foscari, on the Grand Canal. By the courtesy of their hosts, members received a publication containing, in English, summaries of the numerous papers presented to the Associazione, in addition to details of the meetings of both societies.

The meeting was one of the most successful that the Institute has held. On behalf of the Council and members, the President has expressed to the President of the Associazione di Metallurgia, and to all those who were concerned with the organization of the meeting, the Institute's warm sense of gratitude to its hosts for the most friendly and generous way in which the members and their ladies were received and entertained.

This meeting, it is hoped and believed, will have been the means of drawing more closely together those in Europe who are engaged in the science and practice of metallurgy. Old acquaintanceships were renewed and many new acquaintanceships and new friendships were made at this meeting, and members were privileged to see some very fine metallurgical plants in both the non-ferrous and ferrous industries.

A memorable meeting indeed, for which we offer our sincere thanks to our hosts and to Dr. Leno Matteoli, our Honorary Corresponding Member for Italy, who arranged it and played so large a part in its organization. We hope that, at a not too distant date, the Associazione Italiana di Metallurgia will be able to hold a meeting in Britain, side-by-side with a meeting of the Institute.

Membership Development

The Secretary has received instructions from the Council to take all possible steps to increase the Institute's membership in a big way during the present financial year. Unless specifically requested to do so by members of the Institute, he will not however invite possible members to join the Institute, but hopes to enlist the help of members themselves to introduce applicants for membership from their own Companies and laboratories or from among their own acquaintances in other Companies which, as yet, may not even be represented on the Institute's roll.

In many Companies in the non-ferrous metals industry there are no members at all; in others there are obviously many scientific and technical men who should be invited to join the Institute and to take part in its activities, and who would benefit from its publications and other services.

Will those members—both in the British Isles and in other countries—who are prepared to take steps to increase the Institute's membership in their own localities, or branches of the industry, please advise the Secretary to that effect? Copies of an attractive document giving brief details of the Institute's aims, work, and membership can be supplied, on application, and the Secretary will be glad, from his records, to give members the names of those who are already members of the Institute in the firms and other establishments in their own areas or branches of the industry.

With members' co-operation, it is believed that the membership of the Institute can be increased very largely in a short space of time.

Informal Discussion on "Tool and Die Materials for the Extrusion of Non-Ferrous Metals and Alloys"

As already briefly announced, a General Meeting of the Institute will be held at The University, Edgbaston, Birmingham 15, at 2.30 p.m. on Thursday, 3 January 1952, when there will be an informal discussion on "Tool and Die Materials for the Extrusion of Non-Ferrous Metals and Alloys". The Chair will be taken by Mr. Christopher Smith, Chairman of the Metallurgical Engineering Committee.

This is a new venture on the part of the Institute, and is designed to interest those who are actively concerned in production, both as engineers and metallurgists. If successful, it may lead to an extension of the Institute's activities which it is felt will be of considerable value to a wider range of members.

After short introductory talks by a user and by a manu-

facturer of tool and die materials, there will be a general discussion in which those engaged in extrusion operations will be encouraged to state their problems. It is hoped that representatives of extrusion-press makers and steel manufacturers will be present to take part in the discussion and to give advice where possible. Non-members who are interested in extrusion will be welcomed.

On the morning of 3 January the President (Professor A. J. Murphy, M.Sc.) has kindly arranged for the new Aitchison Laboratories of the Metallurgy Department at Birmingham University to be open for inspection by members at 10.30 a.m. Tickets of admission to the laboratories are obtainable from the Secretary of the Institute.

Lunch can be provided at the University (price 3*s.* 6*d.*), but those who wish to take advantage of this facility must notify the Secretary by 15 December, sending the necessary remittance.

" Non-Destructive Testing of Metals "

No. 10 in the Institute's Monograph and Report Series has now been published. It is entitled " Non-Destructive Testing of Metals ", and was specially written for the Series by Dr. R. F. Hanstock, Chief Physicist to High Duty Alloys, Ltd., Slough.

The published price is 21*s.* (or $3.50) post free, and—as a privilege of membership—each member of the Institute may purchase one copy at the reduced rate of 10*s.* 6*d.* (or $2.00) post free.

Representatives: General Board of the National Physical Laboratory

The Council has nominated Major C. J. P. Ball, D.S.O., M.C., F.R.Ae.S., Vice-President, to be a representative on the General Board of the National Physical Laboratory, in succession to Sir William Griffiths, D.Sc., F.R.I.C., F.I.M., whose term of duty ends on 31 December 1951.

The other representative of the Institute on the General Board is Professor A. J. Murphy, M.Sc., F.I.M.

Metal Physics Committee

Dr. C. S. Barrett has agreed to serve on the Metal Physics Committee while he is in this country.

Election of Members

The following 27 Ordinary Members, 2 Junior Members, and 9 Student Members were elected on 18 October 1951:

As Ordinary Members

Ahmad, Halim Uddin, B.Sc., Assistant Sectional Officer, Royal Ordnance Factory, Radway Green, near Crewe, Cheshire.

Battin, Royston George, L. H. Dowling and Sons, Kingsbury Road, Minworth, near Birmingham.

Clark, Arthur, Works Manager, British Driver-Harris Company, Ltd., Cheadle Heath, Stockport, Cheshire.

Daniels, Neville Harold George, B.A., Senior Scientific Officer, Metallurgy Department, Royal Aircraft Establishment, Farnborough, Hants.

Darmara, Falih N., Ph.D., Assistant to the President, Utica Drop Forge and Tool Corporation, Utica, N.Y., U.S.A.

Davies, Daniel Evan, Metallurgist, Aluminium Wire and Cable Company, Ltd., Port Tennant, Swansea, Glam.

Doo, Betty, Senior Steward, Advanced Physical Metallurgy Laboratories, County Technical College, Wednesbury, Staffs.

Fisher, John C., A.B., Sc.D., Head, Physical Metallurgy and Cryogenics Section, General Electric Research Laboratory, The Knolls, Schenectady, N.Y., U.S.A.

Gawley, Thompson Leslie, B.Sc., Works Manager, Elkington and Company, Ltd., Goscote, near Walsall, Staffs.

Hameed, Muhammad Abdul, B.A., Assistant Sectional Officer, Royal Ordnance Factory, Radway Green, near Crewe, Cheshire.

Keefe, Joseph Marsden, Melting Shop Mechanical Engineer, Steel Company of Wales, Abbey Works, Port Talbot, Glam.

McKinnon, Neil A., M.Sc., Atomic Energy Research Establishment, Harwell, near Didcot, Berks.

Mehl, Ernst, Ph.D., Technical Adviser, McKechnie Brothers, Ltd., Widnes, Lancs.

Khand, Ghulam Mustafa, B.Sc., Assistant Sectional Officer, Royal Ordnance Factory, Radway Green, near Crewe, Cheshire.

Owen, William Edward, Chief Chemist, Richard Thomas and Baldwins, Ltd., Wern Works, Briton Ferry, Glam.

Parghi, H. S., B.Sc., Metallurgist, Kamani Metals and Alloys, Ltd., Agra Road, Kurla, Bombay, India.

Park, Alexander Gordon Paterson, Stewarts and Lloyds of South Africa, Ltd., P.O. Box 74, Vereeniging, Transvaal, South Africa.

Pienaar, Noel Pieter, B.Sc., Assistant Metallurgist, Stewarts and Lloyds of South Africa, Ltd., P.O. Box 74, Vereeniging, Transvaal, South Africa.

Rang, Edmund Jule, M.Sc., Head of Boiler Design Department, Merz and McLellan, Consulting Engineers, Carliol House, Newcastle-on-Tyne 1.

Schapiro, Leo, B.S., Ph.D., Chief Metallurgist, Douglas Aircraft Company, Inc., Santa Monica, Calif., U.S.A.

Sendorek, Andrew, Dipl.Ing., Metallurgist, Research Laboratories, The British Aluminium Company, Ltd., Chalfont Park, Gerrards Cross, Bucks.

Sperring, Elbert D., Assistant to Continuous Strip Mill Superintendent, Scovill Manufacturing Company, Waterbury, Conn., U.S.A.

Spooner, Edwin George, Director, Martin Burn, Ltd., 12 Mission Row, Calcutta, India.

Sullivan, John W. W., Sc.D., American Iron and Steel Institute, 350 Fifth Avenue, New York 1, N.Y., U.S.A.

Thacker, M. S., B.Sc., Director, Indian Institute of Science, Bangalore 3, India.

Werdenberg, Wilhelm, Dipl.Ing., Director, S.A. des Câbleries et Tréfileries de Cossonay-Gare, Switzerland.

Wright, Eleanor V., A.B., Engineering Librarian, Chrysler Corporation, P.O. Box 1118, Detroit 31, Mich., U.S.A.

As Junior Members

Dodd, Peter Graham, Head of Works Laboratory, Metal and Ores Pty., Ltd., 116 Bourke Road, Alexandria, N.S.W., Australia.

Wilkinson, Henry, B.Sc., Metallurgist, Northern Aluminium Company, Ltd., Banbury, Oxon.

As Student Members

Banerji, Salil Kumar, B.Sc., National Metallurgical Laboratory, Jamshedpur, India.

Bruce, Douglas Swirney, B.Sc., A Squadron, 3 Training Regiment, Royal Engineers, Cove, Hants.

[*Foto Locchi, Florence.*

A Group of Members and Ladies, photographed on the Piazzale Michelangelo, Florence, during the Autumn Meeting in Italy. The statue is a copy of Michelangelo's "David".

CHAPPELL, John Brian, Metallurgist, Richard Thomas and Baldwins, Ltd., Section Research Department, Wern Works, Briton Ferry, Glam.

CRITCHLEY, John, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.

HOWARD, WILLIAM James, Mechanical Testing Officer, Australian Aluminium Company Pty., Ltd., P.O. Box 12, Granville, Sydney, N.S.W., Australia.

KHAN, Mohammed Idrees, Student of Engineering, J. I. Thornycroft and Company, Ltd., Woolston, Southampton.

LATIMER, Keith Graham, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.

STILES, Denis, Student of Metallurgy, British Non-Ferrous Metals Research Association, Euston Street, London, N.W.1.

WOOD, Derek Statham, B.Sc., Research Student, Department of Metallurgy, The University, Manchester 13.

PERSONALITIES

Mr. N. I. Bond-Williams

Mr. Noel Ignace Bond-Williams, who has recently been appointed to fill a casual vacancy on the Council of the Institute, was born in 1914 and educated at West House School and Oundle. He entered Birmingham University in 1932 and studied metallurgy under Professor Hanson, obtaining his B.Sc. degree with Honours in 1935. For a period he carried out research at the University, but abandoned it in 1937 on the death of his father, Mr. W. H. Williams, whom he succeeded as Managing Director of The Aston Chain and Hook Co., Ltd., Birmingham.

Mr. Bond-Williams was President of the Guild of Undergraduates of Birmingham University in 1936–37, and President of the Guild of Graduates in 1947–50. He is a member of the American Society for Metals, and the American Institute of Mining and Metallurgical Engineers, and an Associate of the Institution of Metallurgists. He also serves on the Council of the Industrial Welfare Society.

PERSONAL NOTES

MR. R. W. BAILEY, of the Zinc Development Association, was a member of an O.E.E.C. Technical Mission which has just visited the United States to study galvanizing techniques.

MR. T. G. BAMFORD is retiring at the end of the year from the position of Principal of the County Technical College, Wednesbury, which he has held for the last 23 years.

SIR LAWRENCE BRAGG has been awarded the Reginald Mitchell Memorial Gold Medal of the Stoke-on-Trent Association of Engineers.

MR. D. H. BUTLER has left Copper and Alloys, Ltd., West Bromwich, and taken a post as Development Metallurgist to the Phosphor Bronze Co., Ltd., Bradford Street, Birmingham.

MR. R. A. BUTLER has taken up an appointment as metallurgist at the Rugby works of the English Electric Co., Ltd.

DR. A. T. CHURCHMAN has resigned his fellowship at Birmingham University and is now a research metallurgist in the laboratory of Associated Electrical Industries, Ltd., Aldermaston, Berks.

MR. L. M. CLAREBROUGH, a Research Officer in the Division of Tribophysics of the C.S.I.R.O., Melbourne, is working for a year at Birmingham University.

MR. C. L. M. COWLEY, of Imperial Chemical Industries, Ltd., Metals Division, has just visited the United States as a member of an O.E.E.C. Technical Mission which studied non-ferrous heavy metal fabrication.

MR. C. F. DAVEY, of Thomas Bolton and Sons, Ltd., has just visited the United States as a member of an O.E.E.C. Technical Mission which studied non-ferrous heavy metal fabrication.

MR. C. H. DAVY has been appointed Works Director at the Renfrew and Dumbarton Works of Babcock and Wilcox, Ltd.

MR. E. GREGORY has now left Cambridge University, where he has been engaged on research for the last three years, having been awarded an E.C.A. Scholarship for the study of production technology and management in the field of high-temperature materials. His address is 933 Forest Avenue, Ann Arbor, Mich.

MR. V. GRIFFITHS has completed his post-graduate research at University College, Swansea, and is now a half-time assistant in the Department of Metallurgy at the Massachusetts Institute of Technology.

MR. K. W. GRIMWOOD has recently obtained the degree of B.Sc.(Eng.) at London University.

MR. F. HARGREAVES has been appointed Regional Works Metallurgist, Southern Region, British Railways, with headquarters at Brighton.

MR. R. HAYNES has recently left the University of Sheffield and has been appointed assistant lecturer in metallurgy in the University of Leeds.

MR. H. HERNE has left the British Iron and Steel Research Association and joined the Research Association of British Rubber Manufacturers, Croydon.

MR. J. E. HILLIARD has taken a temporary appointment as Research Associate in the Metallurgy Department of the Massachusetts Institute of Technology, Cambridge, Mass.

MR. E. J. HOOKER has left the Research Laboratories of British Insulated Callender's Cables, Ltd., and has been appointed metallurgist at Southern United Telephone Cables, Ltd.

MR. H. A. MACCOLL, at present Head of the Department of Metallurgy, has been appointed Principal of the County Technical College, Wednesbury, in succession to Mr. T. G. Bamford.

DR. H. L. MAXWELL, Supervisor of General Consultants, E.I. du Pont de Nemours and Co., Inc., Wilmington, Del., has been elected a Vice-President of the American Society for Testing Materials.

MR. H. W. MEAD is now working in the Metal Research Laboratory of the Carnegie Institute of Technology, Pittsburgh, Pa.

MR. H. J. MILLER, of British Insulated Callender's Cables, Ltd., has just visited the United States as a member of an O.E.E.C. Technical Mission which studied non-ferrous heavy metal fabrication.

MR. J. MORGAN, formerly Chief Metallurgist to Magnal Products, Ltd., has left for Canada to take up a post as Chief Metallurgist to Foundry Services (Canada), Ltd., Guelph, Ont.

MR. R. PRASAD is now a research student in the Department of Metallurgy at Cambridge University.

MR. C. W. RIDGE has recently returned to Southern Rhodesia, where he has been appointed consultant to several firms.

MR. N. H. TOWNEND has left Thomas Bolton and Sons, Ltd., Widnes, to join the staff of the Research Laboratories of the General Electric Co., Ltd., Wembley.

MR. L. WALKER has left the English Electric Co., Ltd., and is now a development metallurgist in the laboratories of Plessey Co., Ltd., Towcester, Northants.

Obituary

The Editor regrets to announce the death of:

MR. GEORGE CHELIOTI, a Director of the General Electric Co., Ltd., and Associated Companies, and General Manager of the Osram-General Electric Company group of works, who died on 27 September at sea while returning from South Africa.

JOHN DEVONSHIRE ELLIS at his home at Lavant, Sussex, on 31 August, in his 68th year. Until his retirement last year, Mr. Ellis had been since 1929 London Manager of The Birmingham Battery and Metal Co., Ltd.

MR. ARTHUR WESLEY HOTHERSALL, M.Sc., F.I.M., Deputy Chief Scientific Officer, Armament Research Establishment, Woolwich, at his home at Eltham on 20 October, aged 55.

MR. FRANK WALKER, a metallurgist with British Insulated Callender's Cables, Ltd., Liverpool, at the age of 28. Mr. Walker was one of the victims of the accident to the Liverpool–London express which occurred at Weedon, Northants, on 21 September.

NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

Birmingham Local Section

The Birmingham Local Section is again following its practice in recent years by holding an All-Day Meeting in the Spring of 1952. This will take place on Friday, 29 February, at the College of Technology, Suffolk Street, Birmingham, and will be concerned with "New Techniques of Metallurgical Research". Papers have been promised on a variety of aspects of metallographic and X-ray technique, on surface examination of metals, on mechanical testing, and on the contribution which powder metallurgy is able to make to metallurgical research. An Introductory Address will be given by Professor A. G. Quarrell and, in addition to discussions on the individual papers, there will be an Open Discussion at the end of the afternoon session. Short contributions to this ("Supplementary Communications") will be welcome and will be circulated, with the synopses of the papers, to those who register for the meeting. (Registration fee 7*s.* 6*d.*; lunch 8*s.* 6*d.*) Communications and enquiries should be addressed to the Hon. Secretary, Mr. E. H. Bucknall, M.Sc., F.I.M., 264 Harborne Park Road, Harborne, Birmingham 17.

The Debate: "That in the opinion of this House further encroachment of Metal Physics into the sources of instruction would be detrimental to training in Metallurgy," originally arranged for 25 October, has been postponed until 7 February 1952.

All meetings of the Section this session will begin at 6.30 p.m., and not at 7 p.m. as stated in the programme.

South Wales Local Section

The President, accompanied by the Secretary, will pay an official visit to the South Wales Local Section on Tuesday, 15 January 1952.

JOINT ACTIVITIES

Mond Nickel Fellowships

The Mond Nickel Fellowships Committee announces the following awards for 1951:

MR. J. PRESTON (British Non-Ferrous Metals Research Association) to study, in Great Britain, the United States, and Canada, specialized methods of production and fabrication of metals, with particular reference to powder-metallurgical techniques.

MR. P. E. WHITE (J. B. and S. Lees, Ltd.) to study the metallurgy and detailed production technique of high-quality strip steels in the United Kingdom, Scandinavia, the United States, and Canada, with particular reference to hardened and tempered steel strip, stainless steels, and silicon steels.

NEWS OF KINDRED SOCIETIES

The Institution of Metallurgists

The following candidates have been successful in the 1951 examinations:

Fellowship

G. R. Morton (Coventry).

Associateship

★ R. J. Beishon (Wembley), ★ D. Bindley (Allesley), K. G. Blackmore (Liverpool), P. Bradley (Aylesbury), ★ H. Brunner (London), D. Cemm (Lewisham), J. Cowie (Kilbirnie), ★ A. R. Daniel (Morden), D. Davies (Birmingham), J. Donaldson (Glasgow), C. Ford (Glasgow), J. F. Giblin (St. Helens), C. C. Hanson (Walsall), J. Hines (Nuneaton), S. R. A. Langford (Brockley), R. C. Lloyd (Birmingham), R. M. Loach (Bilston), ★ P. H. Meade (Wirral), R. Mills

(Streatham Common), * R. C. Perriton (Worcester Park), M. W. Randall (Coventry), * R. W. Shapton (Danygraig), N. F. Sheppard (Hornsey), E. Ward (Doncaster), T. Williams (Ruddington).

* Election to the appropriate grade of membership deferred until regulations in respect of age and experience shall have been complied with.

Licentiateship

R. G. Bretherton (Croston), N. T. Burgess (Merstham), J. W. Campbell (London), W. H. Casling (Heston), J. D. Chadwick (Clapham Common), D. J. Fricker (Slough), P. Gregory (Farnborough), E. G. Hall (Slough), J. R. Hawley (Leicester), A. Milligan (Rosyth), R. K. Mitra (India), C. Morris (Stoke Gifford), R. J. Page (Uxbridge), E. C. Sykes (Palmers Green), P. C. Thornton (Birmingham), W. R. Utteridge (Coventry).

Institute of Metal Finishing

The Council of the Electrodepositors' Technical Society announces that, in accordance with a Resolution passed at the last Annual General Meeting, application which was made some time ago for official incorporation has now been granted and as a result the Society is now an Incorporated Body.

At the same time application was made for permission to adopt a new title embracing metal finishing generally (excluding only vitreous enamelling). This is in accordance with the general policy of the Society to extend its field beyond electrodeposition processes to include metal finishing generally, with which the bulk of its members are vitally concerned.

The new title by which the Society will henceforth be known is The Institute of Metal Finishing incorporating Electrodepositors' Technical Society Limited. As a result of this change the original aims and objects of the Society—namely, to promote the study of, and disseminate information on, electrodeposition and cognate processes as widely as possible—are in no way affected and will, in fact, be pursued as vigorously as ever. The sphere of interest has now been significantly widened, and the Council is of the opinion that this will bring with it corresponding benefit to the membership.

The Executive Officers and Council of the new Institute remain unchanged. The present Executive Officers are: Mr. H. Silman, President; Dr. S. Wernick, Honorary Secretary; and Mr. F. L. James, Honorary Treasurer. The Institute's address is 27 Islington High Street, London, N.1 (TERminus 3251).

A.S.T.M. Symposium on Testing Metal Powders and Metal-Powder Products

A Symposium on Testing Metal Powders and Metal-Powder Products, consisting of several technical papers by leading authorities in this field, will be an important feature of the 1952 Spring Meeting of the American Society for Testing Materials, which will be held during the week beginning March 3 at the Hotel Statler in Cleveland, Ohio.

While many symposia have been held on the scientific and technical aspects of powder metallurgy, this is believed to be the first symposium which is specifically concerned with methods of testing. Powder metallurgy as a production method has made rapid progress during the last few years, and new and improved methods for testing powders and fabricated parts are constantly being evolved. The proposed symposium is intended to serve as a medium for the exchange of information between all who are interested in this field, and papers which are concerned with any phase of the testing of metal powders or of fabricated parts are invited. Anyone interested in contributing such a paper should write to Mr. F. V. Lenel, Rensselaer Polytechnic Institute, Troy, N.Y., who is the Secretary of A.S.T.M. Committee B-9, which is organizing the symposium.

OTHER NEWS

The Royal School of Mines

We offer our warmest congratulations to the Royal School of Mines on its Centenary, which it celebrated last month. There can be few members of the Institute who are not aware of the important part played by the School during the past hundred years, in particular in the fields of geology, mining, and extractive metallurgy, for its graduates have been found at work in the remotest parts of the world and have established a reputation for ability and integrity that reflects the greatest credit on the Royal School of Mines and the line of distinguished men who have directed the studies there.

It is now just 100 years ago that the Prince Consort actively assisted in the formation of the " Government School of Mines and of Science Applied to the Arts ". This school started as an appendage to the Museum of Practical Geology, which had been formed by the efforts of Sir Henry De la Beche. The Museum and School were situated in Jermyn Street, London, on the site now occupied by Simpsons.

In 1853 the school was placed under the control of the Science and Art Department and the first staff included Lyon Playfair, Forbes, Hunt, Percy, A. C. Ramsay, and Warington Smyth. Later, Murchison succeeded De la Beche as Director and T. H. Huxley succeeded Forbes. In 1859 the name was altered to " The Government School of Mines " and four years later to " The Royal School of Mines ".

In 1870 a Royal Commission advised the removal of the Royal School of Mines to a site near Exhibition Road in South Kensington, which Prince Albert had persuaded the Commissioners of the 1851 Exhibition to purchase, and during the next few years, in spite of stern opposition from Percy, this move took place. As a result Percy resigned and was succeeded by a former student, Chandler Roberts, later to be Sir William Roberts-Austen, who combined this post with that of Chemist and Assayer at the Royal Mint. During the next decade the staff included such men as Brough, Judd, Thorpe, and le Neve Foster. In 1902 Sir William Gowland, another of Percy's pupils, succeeded Roberts-Austen as Professor of Metallurgy, and the succession proceeded through Carlyle and Sir Harold Carpenter to the present holder of the chair, C. W. Dannatt. The courses in mining and metallurgy were in 1911 extended to four years, and later courses in oil technology and mining geology were included in the curriculum. Other professors in the School at present are J. A. S. Ritson (mining), David Williams (mining geology), and V. C. Illing (oil technology).

The Central Technical College of the City and Guilds Institute, founded in 1884, was already housed in Exhibition Road, and in 1907 a Charter established the Imperial College of Science and Technology, comprising the Royal College of Science, the Royal School of Mines, and the City and Guilds Engineering College. The present building in Prince Consort Road was occupied in 1913.

The Centenary celebrations have included a banquet at the Drapers' Hall attended by the Chancellor of London Univer-

sity, the Earl of Athlone, and H. R. H. Princess Alice; a Conversazione in the Royal School of Mines building; and a Commemoration Ball.

Leverhulme Research Fellowships, 1952

Application is invited for Fellowships and Grants in aid of research. The Fellowships and Grants are intended for senior workers who are prevented by routine duties or pressure of other work from carrying out research. They are limited to British-born subjects normally resident in the United Kingdom. In exceptional circumstances the Trustees may waive the condition as to residence.

The Trustees are also prepared to consider applications from groups of workers engaged upon co-operative programmes of research particularly from those engaged upon long-distance programmes.

The duration of the awards will not normally extend over more than two years or less than three months and the amount will depend on the nature of the research and the circumstances of the applicant.

Forms of application may be obtained from the Secretary, Leverhulme Research Fellowships, 3/5, Salisbury Square, London, E.C.4. Telephone: City 1910.

Applicants must be received on or before 31 December 1951. Awards will be announced in May and will date from 1 September 1952.

DIARY

Local Section Meetings

4 December. Oxford. Discussion on Selected Papers Published in the *Journal*. (7.0 p.m.)

4 December. South Wales. "The Solidification of Castings", by R. W. Ruddle. (University College, Metallurgy Department, Singleton Park, Swansea, at 6.30 p.m.)

6 December. Birmingham. Student Evening. (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

7 December. Sheffield. "Precious Metals in Industry", by H. G. Dale. Joint Meeting with the Sheffield Centre of the Institute of Metal Finishing. (The University, St. George's Square, Sheffield, at 6.30 p.m.)

10 December. Scottish. Symposium on "Materials Testing". (39, Elmbank Crescent, Glasgow, C.2, at 6.30 p.m.)

12 December. London. "The Development of Aluminium Alloy Casting", by A. P. Fenn. Joint Meeting with the Institute of British Foundrymen, London Branch. (Waldorf Hotel, Aldwych, W.C.2, at 7.0 p.m.)

Other Societies

4 December. Institute of Metal Finishing, Midlands Centre. "Paint Application by Automatic Means", by Dr. S. Wernick. (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

5 December. Institution of Heating and Ventilating Engineers, East Midlands Branch. "Internal Stresses in Metals", by Professor J. A. Pope. (School of Technology, Leicester, at 6.30 p.m.)

5 December. Joint Committee on Materials and Their Testing. Symposium on "Recent Developments in the Notch-Bar Testing of Materials and Their Relation to Welded Construction". (Institution of Civil Engineers, Great George Street, London, S.W.1, at 10 a.m. and 2.30 p.m.)

5 December. Manchester Metallurgical Society. Film Show. (Engineers' Club, Albert Square, Manchester, at 6.30 p.m.)

6 December. Institution of Production Engineers, London Section. "High-Speed Press Work", by J. A. Grainger. (Royal Empire Society, Northumberland Avenue, London, W.C.2, at 7.0 p.m.)

6 December. Leeds Metallurgical Society. Films on Process Heating Equipment. (Chemistry Department, The University, Leeds 2, at 7 p.m.)

APPOINTMENTS VACANT

ANALYTICAL CHEMIST assistant required by London firm engaged in manufacturing non-ferrous metal alloys. The job holds good prospects for the right man. Box No. 314, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

BIRLEC LIMITED, Tyburn Road, Erdington, Birmingham 24, require a trainee Service Engineer for starting up, servicing, and field research on large arc and induction melting furnaces, ferrous and non-ferrous. Qualifications are H.N.C. or equivalent in electrical or mechanical engineering and practical experience in foundry work. The position offers excellent prospects, with opportunities for travelling abroad. Applicants should give full details of their education and experience and state the salary required. Apply to Personnel Officer.

METALLURGICAL CHEMIST. A rapidly expanding organization in the East Midlands requires a metallurgical chemist to undertake a variety of analytical work in the ferrous and non-ferrous fields. A knowledge of the properties and analysis of oils and greases would be an advantage. The nature of the post demands that only applicants who can work on their own initiative and take responsibility need apply. Full details of experience and present salary to Box No. 313, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

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For publication in January 1952

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